AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) An introducer device, comprising:

a guide unit ~~having~~ defining a range of motion;

a holder assembly capable of receiving attachment of a primary medical device, the holder assembly traveling along the range of motion of the guide unit;

a handheld advancer assembly operably connected to the guide unit;

a thumb wheel advancer system connected to the handheld advancer assembly and located remote from the guide unit [[that]], a thumb wheel operable to be rotated around a thumb wheel axis, wherein the thumb wheel advancer system translates rotation of the thumb wheel about [[a]] the thumb wheel axis into motion of the holder assembly along the range of motion~~; and~~

~~an MR compatible cable that operatively couples the advancer to the holder assembly, wherein input from the advancer controls motion of the holder assembly along the range of motion~~.

2. (Original) The introducer device of claim 1 wherein the guide unit comprises a slide tower and the range of motion is linear along a slide axis of the slide tower.

3. (Cancelled)

4. (Currently Amended) The introducer device of claim [[3]] 1 further comprising an indicator scale coupled to the thumb wheel wherein the indicator scale indicates the position of the holder assembly within the range of motion.

5. (Original) The introducer device of claim 1 further comprising a body, the body having a hole through it, wherein the guide unit is coupled to the body and the primary medical device passes through the hole in the body as guided by the holder assembly along the range of motion.

6. (Original) The introducer device of claim 5 further comprising a centering plate adjustably attached to the body, the centering plate comprising:

at least two walls partially defining an opening in the plate;

wherein the centering plate may be adjusted such that the walls engage the primary medical device and center the primary medical device.

7. (Currently Amended) The introducer device of claim 1 further comprising a locking device positioned on the handheld advancer assembly and configured to allow simultaneous operation of the thumb wheel and the locking device with a hand of a user, wherein the locking device must be actuated before any motion of the holder assembly is permitted.

8. (Original) The introducer device of claim 7 wherein the locking device may further be selectively actuated in either a freewheeling mode or a discrete step mode.

9. (Canceled)

10. (Original) The introducer device of claim 1, further comprising a first frameless locating attachment coupled to the holder assembly.

11. (Original) The introducer device of claim 10, wherein the first frameless locating attachment includes a plurality of infrared (IR) reflective spheres.

12. (Original) The introducer device of claim 10, wherein the first frameless locating attachment includes a plurality of infrared (IR) generating LED devices.

13. – 16. (Canceled)

17. (Currently Amended) An introduction system, comprising:

a trajectory guide device;

an introducer device attached to the trajectory guide, comprising:

a guide unit having a range of motion;

a holder assembly capable of receiving attachment of a primary medical device, the holder assembly traveling along the range of motion of the guide unit;

a rotating wheel advancer located remote from the guide unit; and

an MR compatible cable that ~~operatively~~ operably couples the rotating wheel advancer to the holder assembly, wherein input from the rotating wheel advancer controls motion of the holder assembly along the range of motion; and

a primary medical device attached to the holder assembly.

18. (Currently Amended) The introduction system of claim 17, wherein the introducer device further comprises:

a local position sensor mounted to the guide unit, wherein a position of the holder assembly along the range of motion is sensed; and

a remote user interface, ~~operatively~~ operably coupled to the local position sensor, wherein the remote user interface displays the position of the holder assembly along the range of motion.

19. (Original) The introduction system of claim 17, further comprising:

at least one device mounted coil that determines a holder assembly reference frame; and

a user interface that detects the holder assembly reference frame and an operating surface reference frame and determines a relative position difference between the two reference frames.

20. (Original) The introduction system of claim 17, further comprising:

a first frameless locating attachment attached to the holder assembly;

a second frameless locating attachment attached to a surface that a patient is attached to; and

an imaging device that detects the first and second frameless locating attachments and references the position of the first frameless locating attachment relative to the second frameless locating attachment.

21. (Currently Amended) The introduction system of claim 20, wherein the first and second frameless locating attachments includes at least one of a plurality of infrared (IR) reflective spheres; a plurality of infrared (IR) generating LED devices; or combinations thereof.

22. (Canceled)

23. (Original) The introduction system of claim 20, wherein the imaging device includes an IR sensitive camera.

24. (Currently Amended) An introduction system comprising:

a trajectory guide device and a fixation member, wherein the trajectory guide device is attached directly to a patient with the fixation member;

an introducer device attached to the trajectory guide, comprising:

a guide unit having a range of motion;

a holder assembly capable of receiving attachment of a primary medical device, the holder assembly traveling along the range of motion of the guide unit; and

an adjusting wheel system including an adjusting wheel coupled locally to the guide unit [[that]], wherein the adjusting wheel is operable to rotate around an axis of rotation and the adjusting wheel system translates the rotary motion of the adjusting wheel ~~about an~~ around the adjusting wheel axis of rotation into substantially linear motion of the holder assembly along the range of motion; and

a primary medical device attached to the holder assembly.

25. – 26. (Cancelled)

27. (Currently Amended) The introduction system of claim 24, wherein the introducer device further comprises:

a local position sensor mounted to the guide unit, wherein a position of the holder assembly along the range of motion is sensed; and

a remote user interface, ~~operatively~~ operably coupled to the local position sensor, wherein the remote user interface displays the position of the holder assembly along the range of motion.

28. (Currently Amended) The introduction system of claim 27, wherein the local position sensor includes at least one of a potentiometer, an encoder, or combinations thereof.

29. – 32. (Canceled)

33. (New) The introducer device of claim 1, further comprising:

an MR compatible cable that operably couples the handheld advancer assembly to the holder assembly, wherein input from the handheld advancer assembly controls motion of the holder assembly along the range of motion.

34. (New) The introducer device of claim 1, further comprising:

a cable having a first end attached to a first side of the thumb wheel and a second end attached to a second side of the thumb wheel, wherein the thumb wheel is rotated to move the cable in at least one of two directions.

35. (New) The introduction system of claim 34, wherein the introducer device has a handheld pistol grip configuration;

wherein an adjusting wheel axis is defined relative to the introducer device to allow operation of the adjusting wheel with a thumb of a user and a locking device is operable to be operated with a digit of a user simultaneously.

36. (New) The introducer device of claim 7, wherein the handheld advancer assembly has a handheld pistol grip configuration;

wherein the thumb wheel axis is defined relative to the handheld advancer assembly to allow operation of the thumb wheel with a thumb of a user and the locking device is operable to be operated with a digit of a user simultaneously.

37. (New) The introduction system of claim 17, wherein the introducer device has a handheld pistol grip configuration;

wherein a rotating wheel advancer axis is defined relative to the introducer device to allow operation of the rotating wheel with a thumb of a user and a locking device is operable to be operated with a digit of a user simultaneously.

38. (New) The introduction system of claim 17, further comprising:

a fixation member operable to fix the trajectory guide directly to a patient.

39. (New) A method of introducing a primary medical device into a patient with a least a guide unit, a holder assembly, and an advancer, comprising:

attaching the guide unit to the patient;

attaching the primary medical device to the holder assembly;

coupling a cable to the holder assembly;

coupling the cable to a wheel advancer of the advancer;

positioning the wheel advancer at a location remote from the guide unit;

rotating the wheel advancer around a fixed axis to form tension on at least one of the cable or the holder assembly; and

moving the holder assembly along a range of motion defined by the guide unit;

wherein the cable translates the rotation of the wheel advancer into a force on the holder assembly to move the holder assembly along the range of motion.

40. (New) The method of claim 39, wherein attaching the guide unit to the patient, further comprises:

attaching a trajectory guide to the patient;

aligning the trajectory guide; and

attaching the guide unit to the trajectory guide.

41. (New) The method of claim 39, further comprising:

acquiring an image of a portion of the patient with the cable within the portion of the patient being imaged;

wherein the image of the portion of the patient is unaffected by the cable.

42. (New) A calibrated introducer device, comprising:

an advancer assembly sized and configured to be held in a single hand of a user, including:

a guide unit defining a range of motion;

a holder assembly capable of receiving attachment of a primary medical device, the holder assembly traveling along the range of motion of the guide unit; and

a thumb wheel advancer including a thumb wheel located remote from the guide unit and operable to be moved with a thumb of the single hand;

an MR compatible cable that operatively couples the thumb wheel to the holder assembly, wherein input from the thumb wheel controls motion of the holder assembly along the range of motion;

a local position sensor mounted to the guide unit, wherein a position of the holder assembly along the range of motion is sensed; and

a remote user interface, operably coupled to the local position sensor, wherein the remote user interface displays the position of the holder assembly along the range of motion.

43. (New) The calibrated introducer device of claim 42, wherein the MR compatible cable is a push-pull cable.

44. (New) The calibrated introducer device of claim 42, wherein the local position sensor includes a potentiometer.

45. (New) The calibrated introducer device of claim 42, wherein the local position sensor includes an encoder.

46. (New) An introducer device, comprising:

a guide assembly including:

a guide unit defining a range of motion;

a holder assembly adapted to be connected to a primary medical device, wherein the holder assembly is adapted to move along the guide unit over at least a portion of the range of motion;

a body defining a through hole, wherein the guide unit is coupled to the body and the primary medical device is operable to pass through the through hole in the body; and

a primary medical device positioning plate adjustably attached to the body and operable to engage the primary medical device to substantially position the primary medical device within the through hole; and

a handheld advancer assembly including:

a pistol grip portion operable to be held within a hand of a user;

a thumb wheel advancer system connected to the pistol grip portion and located remote from the guide unit including a thumb wheel operable to be moved with a thumb of the user;

a trigger member operable to be actuated by a digit of the user to engage the thumb wheel to allow restricted movement of the thumb wheel or disengage the thumb wheel to allow free wheel movement of the thumb wheel; and

a cable having a first end that extends from a first side of the thumb wheel and a second end that extends from a second side of the thumb wheel and a middle portion that couples to the holder assembly, wherein movement of the thumb wheel controls motion of the holder assembly along the range of motion;

wherein the thumb wheel rotates around a thumb wheel axis;

wherein the thumb wheel advancer system translates rotation of the thumb wheel about the thumb wheel axis into motion of the holder assembly along the range of motion.